

ACCESSION NR: AT4045011

SUBMITTED: 07Jan64

ENCL: 00

SUB CODE: EM, SS

NR REF SOV: 004

OTHER: 001

Card

3/3

L 11334-65 EWT(m)/EPF(n)-2/EWP(t)/EWP(b) Pu-h JD/JG S/0021/64/000/008/1060/1063

ACCESSION NR: AP4043730

AUTHOR: Frantsevy*ch, I. M. (Frantsevich, I. N.); Kaly*novy*ch, D. F. (Kalinovich, D. F.); Kovens'ky*y, I. I. (Kovenskiy, I. I.); Smolin, M. D.

TITLE: Investigation of the state of molybdenum and tungsten atoms in their binary alloy

SOURCE: AN UkrRSR. Dopovid, no. 8, 1964, 1060-1063

TOPIC TAGS: binary alloy, molybdenum tungsten alloy, molybdenum atom electron transfer, tungsten atom electron transfer, molybdenum diffusion, tungsten diffusion

ABSTRACT: Electrical transfer and diffusion of both components of a binary Mo-20atW alloy has been investigated in the 1400-2400C temperature range using radioactive Mo⁹⁹ and W¹⁸⁵ isotopes. It was found that at all temperatures, Mo ions migrated to the anode and W ions to the cathode. The absolute values computed for the effective charges show that the electrical transfer of W ions is effected predominantly by the hole wind, and of Mo ions by the electron wind.

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L 11334-65

ACCESSION NR: AP4043730

The diffusion coefficient and the activation energy were $1.9 \text{ cm}^2/\text{sec}$ and $74,600 \text{ cal/mol}$ for W, and $146 \text{ cm}^2/\text{sec}$ for Mo. The data obtained indicate transfer of a definite portion of the electrons from molybdenum atoms to tungsten atoms. These electrons are probably used for partial rebuilding of the defective d-shell of the W atoms. In this manner, the electron density redistribution between atoms of different kinds takes place in the alloy investigated, which leads to donor-acceptor interaction between the alloy components. Orig. art. has: 3 tables and 6 formulas.

ASSOCIATION: Institut problem-materialoznavstva AN URSR (Institute of Problems of the Science of Materials, AN URSR)

SUBMITTED: 03Jan64

ATD PRESS: 3106

ENCL: 00

SUB CODE: MM

NO REF SOV: 006

OTHER: 001

Card 2/2

KALINOVICH, D.A. [Kalynovych, D.A.]; KOVCHENKO, I.I. [Kovens'ko, I.I.];
SPODIN, A.D.

Partial and total mass transfer in the nickel-chromium system.

Ukr. fiz. zhur. 8 no.11:1259-1260 N '64.

(MIRA 17:9)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR, Kiyev.

L 8487-65 EWT(m)/EPF(a)-2/EPR/EWP(k)/EWP(q)/EWP(b) Pf-4/Ps-4/Pu-4
AFWL/AEDC(a)/SSD/ESD(t) JD/JW/JG

ACCESSION NR: AP4044176

S/0185/64/009/008/0920/0921

AUTHOR: Kaly*novy*ch, D. F; Kovens'ky*y, I. (I.); Smolin, M. D.

TITLE: Mobility of carbon in tungsten at high temperatures

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 8, 1964
920-921

TOPIC TAGS: carbon diffusion, diffusion, carbon tungsten alloy,
carbon diffusion coefficient, diffusion activation energy

ABSTRACT: ¹⁸Diffusion of carbon in a tungsten alloy containing 0.1 wt% C has been investigated in the 2073—3073K range using radioactive C ¹⁴. Test specimens, 0.5 mm in diameter and 70 mm long, were annealed in an argon atmosphere. It was found that in the 2073—2873K range the temperature dependence of the diffusion coefficient is linear, $\lg D=f(1/T)$, with parameters $D_0=9.22 \cdot 10^{-3} \text{ cm}^2/\text{sec}$ and $E=169,100 \text{ j/mol}$. In the 2873—3073K range, however, the temperature dependence becomes nonlinear, so that the difference between the experimental and the calculated values of the diffusion coefficients reaches 15, 16.3, and 17.5% at 2873, 2973, and 3073K,

Card 1/2

L 8487-65

ACCESSION NR: AP4044176

respectively, compared with a difference of 4—11% at lower temperatures. Since no phase transformations occur in the temperature range investigated, the above deviations result from the changes in the diffusion activation energy, at temperatures higher than 2800K. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Instytut metalokeramiki i spetsial'nykh splaviv, Kiev
(Institute of Powder Metallurgy and Special Alloys)

SUBMITTED: 30Jan64

ATD PRESS: 3108

ENCL: 00

SUB CODE: MM

NO REF SOV? 000

OTHER? 003

Card 2/2

L 16910-65 EWT(m)/EWP(t)/EWP(b) AFWL JD.

ACCESSION NR: AP5000939

S/0129/64/000/012/0046/0047

AUTHOR: Kalinovich, D. F.; Kovenskiy, I. I.; Smolin, M. D.;
Frantsevich, I. N.

TITLE: Effect of direct current on steel carburization rate

SOURCE: Metallovedeniyy i termicheskaya obrabotka metallov, no. 12,
1964, 46-47

TOPIC TAGS: steel, steel 20, carburization, carbon diffusion, dif-
fusion rate, direct current

ABSTRACT: Steel 20 wires 0.62 mm in diameter and 50 mm in length were carburized in a solid carburizer containing C^{14} radioactive isotope at 800, 900, 920, 940, and 960C for 2, 4, 6, and 8 hr. During carburization, direct current with a density of 18—22 amp/mm² was passed through the wire. Only the anode end of the wire (5 mm long) was in contact with the carburizing medium. It was found that the electric current accelerates the carbon diffusion. The accelerating effect increases with increasing temperature and duration of carburizing. The carbon diffusion rate is 1.8—2.5 times higher with the application of direct current than with conventional carburization.
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L 16910-65

ACCESSION NR: AP5000939

Carbon was uniformly distributed across the whole section of the wire.
Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN
UkrSSR (Institute of Powder Metallurgy and Special Alloys, AN UkrSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 000

ATD PRESS: 3150

Card 2/2

ZAYTSEV, N. I., SMOLIN, M. I.

Diffusion and thermoxidation of carbon in 85KhF steel. Fiz.
met. i metalloved. 17 no.4:607-609 Ap '64. (MIRA 17:8)

2. Institut resheniy i toplivnoy promyslaemosti Gosplana
UkrSSR i Institut metallickeramiki i spetsial'nykh splavov
AN UkrSSR.

L 20090-65 EWT(m)/EPF(n)--/EPR/T/EWP(t)/EWP(b) Ps-4/Pu-4 IJP(c)/ASD(a)-5/ASD(f)-3/
ACCESSION NR: AP4044161 AS(m)-2/0126/64/018/002/0314/0315 ASD(m)-3
JD/JW/JG

AUTHOR: Kalinovich, D. F. ; Kovenskiy, I. I. ; Smolin, M. D.

TITLE: Diffusibility of carbon in tantalum ₂₁

SOURCE: Fizika metallov i metallovedeniye, v. 18, no. 2, 1964, 314-315

TOPIC TAGS: diffusibility, carbon, tantalum, activation energy / 6

ABSTRACT: The invariability of the activation energy of the diffusion process (E) was studied within the 873-2873 K temperature range in 70 mm long Ta rod specimens with a 0.5 mm diameter and a C content of 0.1% (by weight). A 10mm section was marked by isotope C¹⁴ and activity measured every 0.1 mm. The cross-sectional isotope distribution was uniform and the transverse and longitudinal C concentration identical. Above 2073 K a deviation from the regular linear dependence was observed amounting to 37.7, 64.5 and 78.8% for 2073, 2473 and 2873 K respectively. Inasmuch as no phase transformations occur within this temperature range, the deviations may be attributed to the changes in the activa-

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L 20090-65

ACCESSION NR: AP4044161

tion energy above 800 K . Quantitative results will be obtained after further experiments. Orig. art. has: 1 figure and 1 table

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR (Institute of Powder Metallurgy and Special Alloys, AN UkrSSR)

SUBMITTED: 11Feb64

ENCL: 00

SUB CODE: MM, NP

NO REF SOV: 001

OTHER: 000

Card 2/2

L 44730-65 EPP(x)-2/EWP(m)/EWP(b)/EWP(t) Pu-4 IJP(c) JW/JD/JG

ACCESSION NR: AP5010408

UR/0226/65/000/004/0079/0082

AUTHOR: Kalinovich, D. F.; Kovenskiy, I. I.; Smolin, M. D.

TITLE: Diffusion in a binary tungsten-molybdenum alloy

SOURCE: Poroshkovaya metallurgiya, no. 4, 1965, 79-82

TOPIC TAGS: diffusion coefficient, activation energy, tungsten molybdenum alloy, heat resistant alloy, interatomic bonding energy, end window radiation counter, homogenization, high temperature, electrolytic coating, molybdenum 90, tungsten 185

ABSTRACT: The principal properties of metal alloys are determined by the nature of interatomic interaction. The theory of heat resistance regards the strength of interatomic bonding as a major factor affecting the behavior of alloys at high temperatures. The activation energy of diffusion processes is a direct function of the interatomic bonding energy. Therefore, data on the level of diffusion mobility and the activation energy of diffusion are needed to substantiate individual trends in the search for heat-resistant alloys. Accordingly, the authors investigated diffusion in specimens of Mo-W (20 at.% W) alloy consisting of segments of wire 0.3 mm in diameter and 70 mm in length, electrolytically coated with radioisotopes of

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I. 44730-65

ACCESSION NR: AP5010408

2

Mo⁹⁹ or W¹⁸⁵ and homogenized in a protective atmosphere in order to reduce the oxides then forming. The uniformity of these coatings was verified by passing them across the slit of an end-window radiation counter. The activation energies of both molybdenum and tungsten are determined as a function of the temperature dependence of diffusion coefficients. The activation energy of the diffusion of molybdenum in the alloy was found to be lower than the activation energy of its self-diffusion. This is in agreement with the most often observed pattern of decrease in the energy barrier for the displacement of atoms from equilibrium positions on transition from a pure metal to its alloy with other elements, and is attributable to the distorting effect of impurities on the crystal lattice of the base-metal. Orig. art. has: 2 figures, 2 tables.

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR (Institute of Problems of the Study of Materials, AN UkrSSR)

SUBMITTED: 29Dec63

ENCL: 00

SUB CODE: MM, NP

NO REF SOV: 006

OTHER: 002

B.5
Card 2/2

L 63981-65 EPP(n)-2/EWT(m)/EWP(b)/EWP(t) IJP(c) JD/JG
 ACCESSION NR: AP5017317

UR/0181/65/007/007/2186/2189

AUTHOR: Smolin, M. D.

TITLE: Investigation of the electric transference of components in the molybdenum-tungsten system over a wide temperature range

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2186-2189

TOPIC TAGS: molybdenum, tungsten, electric transference, binary alloy

ABSTRACT: The radioactive method was used in the 1400-2800°C temperature range to investigate the electric transference of components in alloys

$x\text{Mo} - (1-x)\text{W}$ ($0.001 \leq x \leq 0.999$).

The effective ion charge z^* was determined. The data show that in the Mo-W system which has infinite solubility of components the composition-property curves for R_x , n_- , n_+ , α_- , α_+ , ρ_0 and ρ_{0+} , which characterize the common properties of the alloys consist of two branches which are approximately symmetric with respect to the composition with 50% W by atomic weight. The quantities b , z , σ_- , σ_+ , which characterize individual components increase with the concentration of each component according to

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L 63981-65

ACCESSION NR: AP5017317

approximately the same law. This affirms that Mo and W occupy an equivalent position in their binary system. Orig. art. has: 5 formulas, 3 tables. 3

ASSOCIATION: Institut problem materialovedeniya AN UkrSSR, Kiev (Institute of Problems in the Study of Materials, AN UkrSSR) 55,44

SUBMITTED: 14Dec64

ENCL: 00

SUB CODE: MM, EM

NO REF SOV: 006

OTHER: 002

KC
Card 2/2

I. 11435-66 EWT(m)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) IJP(c) JD/HW

ACC NR: AP5020694

UR/0185/65/010/008/0917/0919

AUTHOR: Kalynovych, D. F.; Kovens'kyy, I. I.; Smolin, M. D.

TITLE: Diffusion mobility in solid solutions of nickel in iron

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 58, 1965, 917-919

TOPIC TAGS: nickel containing alloy, metal diffusion, solid solution

ABSTRACT: The diffusion of both components of two nickel-iron alloys with a nickel content of 2 and 4 at.% was investigated. A previously described method (Ukr. fizychn. zh. v. 8, 1020, 1963) was used, employing wires 0.05 mm in diameter and about 70 mm long. A thin layer 2--3 mm long of the radioisotopes Fe^{55} and Ni^{63} were electrolytically deposited on the central portion of the samples. After sintering in an inert atmosphere at various temperatures the activity distribution of the tagged atoms was measured. Since the activity is proportional to the radioisotope concentration, the ratio of the activities measured at two different points of the sample was equal to the ratio of the concentrations at these points. The diffusion coefficients obtained by processing the data by two procedures were averaged and tabulated. The temperature dependence of the diffusion coefficients has been found to follow the usual law. Orig. art. has: 2 formulas and 2 tables.

ASSOCIATION: Instytut problem materialoznavstva AN URSR [Institut problem materialovedeniya AN UkrSSR] (Materials Research Institute, AN UkrSSR)

Card 1/2

L 4435-66

ACC NR: AP5020694

SUBMITTED: 15Mar65

NR REF SOV: 004

ENCL: 00

OTHER: 001

SUB CODE: SS, MM

Card 2/2

L 57741-65 EWI(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b)/EWA(h) Feb/Pu-4

ACCESSION NR: AP5017092 IJP(c) JD/JG

UR/0032/65/031/007/0823/0825
537.311.3

AUTHOR: Kalinovich, D. F.; Kovenskiy, I. I.; Smolin, M. D.

32
3/
8

TITLE: Measuring the electrical conductivity of metals at elevated temperatures without using high-temperature furnaces

SOURCE: Zavodskaya laboratoriya, v. 31, no. 7, 1965, 823-825

TOPIC TAGS: electrical conductivity, electrical resistance, current heating, optical pyrometer, molybdenum lead, argon atmosphere, helium atmosphere, temperature curve, slide wire, molybdenum containing alloy, tungsten containing alloy

ABSTRACT: The authors developed a method of measuring the electrical resistance of metals at high temperatures of up to the melting point without utilizing high-temperature furnaces. Specimens of Mo-W wire 0.5-1 mm in diameter and 60-70 mm in length are heated with electric current. Along the specimen there arises a temperature gradient which must be taken into account during the measurements. Prior to the heating the specimens are placed in cylinders with a protective atmosphere of argon or helium at pressures of up to 600-650 mm Hg. The heating current, of an

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L 57741-85

ACCESSION NR: AP5017092

intensity regulated by means of a slide wire, is passed through the specimens via molybdenum leads passing through openings in the cylinders. The temperature distribution along the specimen during heating is regulated with the aid of an optical pyrometer correct to $\pm 5-7^{\circ}\text{C}$. Range of temperatures measured: $800-3000^{\circ}\text{C}$. The electrical conductivity of the specimens was determined as a function of their temperature, according to the equation

$$\rho = \rho_0(1 + \alpha t)$$

where ρ is the electrical conductivity at $t = 0^{\circ}\text{C}$ and α is the temperature coefficient of electrical resistance. On making allowance for the shape of the temperature distribution curve along the length of the specimens, the authors derived working formulas for determining electrical conductivity as a function of a series of specific temperatures (1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300°C) and for molybdenum-tungsten alloys (Mo 15 at.% W, Mo 20 at.% W, Mo 25 at.% W). The experimental findings for high temperatures were correct to 2-4%. Orig. art. has: 2 figures, 1 table.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk UkrSSR
(Institute of Powder Metallurgy and Special Alloys, Academy of Sciences UkrSSR)

SUBMITTED: 00

ENCL: 00

SUB CODE: MM, EE

NR REF SOV: 000

OTHER: 000

Card 2/2 dnp

KALINOVICH, D.F. [Kalynovych, D.F.]; KOVENSKIY, I.I. [Kovens'kyi, I.I.];
SMOLIN, M.D.

Mobility of atoms in a molybdenum-tungsten alloy. Ukr.fiz.zhur.
10 no.12:1365-1367 D '65. (MIRA 19:1)

1. Institut problem materialovedeniya AN UkrSSR, Kiev.
Submitted December 26, 1964.

KALINOVICH, D.F.; KOVENSKIY, I.I.; SMOLIN, M.G.

Electrolysis in the system tungsten .. polybdenum. (MIRA 19:1)
Elektrokhimiya 1 no.12:1488-1490 D 1965.

1. Institut problem materialovedeniya AN UkrSSR. Submitted
March 30, 1965.

SMILIN, M.D.

Study of metals using the methods of electric conductivity, Hall effect, thermo-e.m.f., Hernst-Ettingshausen effect, and electric transfer. Dop. AN URSR no.12:1586-1591 '65. (MIRA 19:1)

1. Institut problem materialovedeniya AN UkrSSR. Submitted December 11, 1964.

ACC NR: AP0012441

SOURCE CODE: UD/364/65/001/012/1488/1490

AUTHOR: Kalinovich, D. F.; Kovenskiy, I. I.; Smolin, M. D.

ORG: Institute of Problems of Materials Science, Academy of Sciences USSR (Institut problem materialovedeniya Akademii nauk SSSR)

TITLE: Electrolysis in the tungsten-molybdenum system

SOURCE: Elektrokhimiya, v. 1, no. 12, 1965, 1488-1490

TOPIC TAGS: tungsten containing alloy, molybdenum containing alloy

ABSTRACT: An investigation was made of partial and total transport of matter in tungsten alloys containing 0.1, 15, 20, 25, 35 and 50 at% of Mo. Specimens in the form of wire segments 0.5 mm in diameter and about 70 mm long were electroplated in their central part with a thin film of radiotracer Mo⁹⁹ or W¹⁸⁵. The length of the deposited layer was 2-3 mm. A special homogenizing annealing of the specimens insured uniform distribution of atoms along the cross section. The starting position of the tagged zone was measured with respect to the end of the specimen. A marker was made in order to measure the total transport in the center of the specimen. Constant current was passed through specimens in an inert atmosphere. The magnitude of current was regulated by rheostats and the temperature was controlled by an optical pyrometer. After completion of the heating, the distribution of tagged atoms was again measured

UDC: 541.13

Card 1/2

ACC NR: AP6012441

along the length of the wire. On the basis of these measurements it was possible to calculate the rate of transport v^* , where the total rate of transport v consists of two components

$$v = v^* + w$$

where w is the rate of displacement of the central part. In all the investigated alloys, molybdenum migrated to the anode and tungsten to the cathode. In tungsten alloys containing 15, 20 and 25% Mo the latter is predominantly involved in transport. In the first alloy (0.1% Mo) almost all of the material transport occurs due to tungsten. In tungsten alloys containing 35 and 50% Mo at 2000°C, inversion of the sign of the overall transport takes place. Below this temperature transport of molybdenum predominates and above it the transport of tungsten becomes predominant. In the first of these two alloys, transport of both components is practically equal to 2200°C. Orig. art. has: 6 tables.

SUB CODE: 11, 07/

SUBM DATE: 30Mar65/

ORIG REF: 004/

OTH REF: 005

Card 2/2

ACC NR: AP6036901 (A) SOURCE CODE: UR/0226/66/000/011/0057/0061

AUTHOR: Kalinovich, D. F.; Kovenskiy, I. I.; Smolin, M. D.

ORG: Institute for Problems in Science of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: High-temperature mobility of atoms of components in a molybdenum-tungsten system

SOURCE: Poroshkovaya metallurgiya, no. 11, 1966, 57-61

TOPIC TAGS: molybdenum, tungsten, high temperature effect

ABSTRACT: An investigation was made of the diffusion of two components in eleven alloys of the molybdenum-tungsten system, containing 0.1, 15, 20, 25, 35, 50, 65, 75, 80, 85, and 99.9 at % of tungsten. The temperature range of experiments, carried out with the aid of Mo⁹⁹ and W¹⁸⁵ tracers, was 600—1000C. The values of D_0 and E (in cal/mol) were calculated for all the alloys used for the investigation. Orig. art. has: 3 formulas and 3 tables. [Based on authors' abstract]

SUB CODE: 11/SUBM DATE: 03Mar66/ORIG REF: 006/OTH REF: 002/

[NT]

Card 1/1

REZNIKOV, A.A.; SMOLIN, M.S.

Immersion photocolormeter without clearing agents. Inform. sbor.
VSEGBI no.4:141-145 '56. (MLRA 10:4)
(Colorimeters)

FATEYEV, V.A.; SMOLIN, N.A.

Signalling and control of the operation of the PP-350-IZ unit
for the formation of capron filament. Khim.volok. no.3:64-67
'62. (MIRA 16:2)

1. Spetsial'noye konstruktorskoye tekhnologicheskoye byuro
mashin dlya proizvodstva khimicheskikh volokon (SKTB MKhV).
(Nylon) (Automatic control)

FATEYEV, V.A., inzh.; SMOLIN, N.A., inzh.

Automatic regulation of the voltage of a synchronous generator in
a frequency regulated electric drive system. Vest. elektroprom. 34
no.8:14-16 Ag '63. (MIRA 16:9)
(Electric driving) (Electric generators)

FATEYEV, V.A.; SMOLIN, N.A.

Automatic voltage regulation of a synchronous generator
in a frequency controlled drive system. Khim. volok. no.4:
58-59 '63. (MIRA 16:8)

1. Spetsial'noye konstruktorsko-tekhnologicheskoye byuro
mashin khimicheskikh volokon.

LEVIN, V.N.; RABKIN, R.L.; SMOLIN, N.A.

Use of frequency converters in the electric drive system of
synthetic fiber molding machines. Khim. volok. no.3:30-32 '64.
(MIRA 17:8)

1. Leningradskiy institut aviatsionnogo priborostroyeniya
(for Levin). 2. Spetsial'noye konstruktorsko-tehnologicheskoye
byuro mashin khimicheskikh volokon, g. Leningrad (for Rabkin,
Smolin).

VASILISKO, I.A.; GOTLIB, Ya.L.; RAZZORENOV, F.F.; SMOLIN, N.I.

Practical instructions for the study of ice jams. Meteor. i
gidrol. no.2:55-57 F '56. (MLRA 9:6)
(Ice on rivers, lakes, etc.)

VASILISKOV, P.A., inzhener; GOTLIV, Ya.L., inzhener; ZAYMIN, Ye.Ye., inzhener;
SMOLIN, N.I., inzhener; KLIMENKO, A.K., inzhener.

Study of water accumulated under snow and calculation of maximum accumulations in planning hydroelectric power stations. Gidr.stroi.25 no.3: 37-39 Ap '56. (MIRA 9:9)
(Hydroelectric power stations) (Hydrology)

SOV-98-58-10-11/16

AUTHORS: Gotlib, Ya.L., Zaymin, YeYe., Smolin, N.I., Engineers

TITLE: Ice-thermic Conditions During the Winter Filling of the Reservoir and the Starting Up of the Irkutsk GES (Ledoterminicheskiye usloviya pri zimnem zapolnenii vodokhranilishcha i puske Irkutskoy Ges)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, Nr 10, pp 37-43 (USSR)

ABSTRACT: The article describes ice-thermic observations made during the winter filling of the reservoir of the Irkutsk Hydroelectric Power Plant carried out by the Moscow section of the Gidroenergoprojekt. Subjects of study were: drifting of ice; sludge ice and ice discharges; the ice field and its movement; the route of the ice and its surveying; thickness of the ice and undersurface flow of the sludge ice into reservoir; water level and water discharge into the lower water. The Irkutsk GES reservoir extends 55 km in length when completely filled. The width of its upper part is 1-2 kilometers, that of the lower and middle parts 2-3 km. Capacity of the reservoir is $2.1 \cdot 10^9$ cu m and it is 35-36 m deep next to the power plant. The building of the power plant is combined with the dam. The results of various observa-

Card 1/2

SOV-98-58-10-11/16

Ice - thermic Conditions During the Winter Filling of the Reservoir and the Starting Up of the Irkutsk GES

tions are given in form of graphs and tables. The authors conclude that a basic change took place in ice-forming processes in the reservoir zone whereas in the lower water processes remained unaltered. At a flooding speed of less than 0.5 m/sec, there was no underwater flow of the sludge ice. Water level in the lower water rose by 3.03 m because of ice jam formations. There are 7 tables, 7 graphs and 1 diagram.

1. Inland waterways--USSR 2. Ice--Properties 3. Water--Sources

Card 2/2

Smolin, N.I.

Trudy po fiziko-matematicheskoi gidrometeorologii i klimatologii. Seriya "Gidrometeorologiya". T. 1. Leningrad: Gidrometizdat, 1957. 470 p. Izdaniye 1-ye. 2,000 copies printed.

Sponsoring agency: Glavmoye upravleniye gidrometeorologicheskoy sluzhby pri Sretse Ministrov SSSR.

Resp. Ed.: V.A. Uryvayev; Ed.: V.S. Protopopov; Tech. Ed.: N.I. Braynina.

PURPOSE: This work is intended for meteorologists, hydrologists, and hydrophysicists, particularly those engaged in the study of snow and ice and evaporation processes.

COVERAGE: This book contains papers on hydrophysics which were presented and discussed at the Third All-Union Hydrological Conference in Leningrad, October 1957. The Conference published 10 volumes on various aspects of hydrology of which this is number 3. The editorial board in charge of the series include: V.A. Uryvayev (Chairman), O.A. Alekin, Ye.V. Bliznyak (deceased), O.N. Boruk, M.A. Vasiliev, I.M. Davydov, A.P. Domantitskiy, G.F. Kalinin, S.M. Krutitskiy, B.Y. Kudachikov, A.P. Mankel, S.P. Orlov, I.V. Popov, A.K. Pronkurov, D.I. Sobolev, G.A. Spengler, A.I. Chebotarev, and S.K. Cherkavskiy. This volume is divided into 2 sections: the first contains reports from the scientific reports for the study of evaporation processes, and the second contains reports from the snow and ice subsection. References accompany each article.

Sokol'nikov, N.M. [Engineer, Leningrad] Problems of the Ice and Thermal Regimen of Rivers and Reservoirs in Water Power Projects 348

Lylo, V.M. [Candidate of Geographical Sciences] Variations in the Glacial-Thermal Regimen of the Angara River During the Melting of the Irkutsk Water Reservoir at a Time of Intensive Sludge Formation 353

Golub, Ya. L., Ye. Ye. Zaymin, and N.I. Smolin [Engineers] Studying the Winter Regimen of the Angara River While Planning Hydroelectric Power Stations 359

Aleksandrovskiy, Yu.V. [Docent, Candidate of Technical Sciences], and K. K. Kuznetsov [Engineer] Planning the Winter Level Regimen of the Tail-water of Hydroelectric Power Stations 369

Svetitskiy, V.P. [Engineer, Sverdlovsk] Winter Regimen of the Hydroelectric Power Station of the Chirchik-Bozsuyskiy Cascade 377

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GOTLIB, Ya.L., inzh.; KRAPIVIN, I.V., inzh.; RAZZORENOV, F.F., inzh.;
SMOLIN, N.I., inzh.

Passage of frazil ice over the crest of the spillway dam of the
Bratsk Hydroelectric Power Station. Gidr. i stroi. 30 no.5:34-37
My '60. (MIRA 14:5)

(Bratsk Hydroelectric Power Station)
(Angara River--Ice)

GOTLIB, Ya.L., inzh.; LYLO, V.M., kand.geograficheskikh nauk; SMOLIN, N.I.,
inzh.

Ice-temperature conditions of the tail race of the Bratsk Hydro-
electric Power Station. Gidr. stroi. 32 no.1:17 Ja '62.
(MIRA 15:3)

(Bratsk Hydroelectric Power Station--Ice on rivers, lakes, etc.)

VASILISKOV, Igor' Aleksandrovich; GOTLIB, Yakov L'vovich; ZAYMIN,
Yevgeniy Yevgen'yevich; SMOLIN, Nikolay Ivanovich;
MOLCHANOVSKIY, A.S., red.; SHIROKOVA, M.M., tekhn. red.

[Study of the winter condition of rivers in water power
surveying] Izuchenie zimnego rezhima rek pri gidroenergi-
cheskikh izyskaniyakh. Moskva, Gosenergoizdat, 1962. 199 p.
(MIRA 15:12)

(Ice on rivers, lakes, etc.)

GOTLIB, Ya.L.; LYLO, V.M.; SMOLIN, N.I.

Calculation of the ice and temperature regime of the tail
water of the Bratsk Hydroelectric Power Station during
operation. Trudy Transp.-energ. inst. Sib. otd. AN SSSR
no.15:45-50 '64. (MIRA 18:6)

GORDASHEVSKIY, P.F., kand. tekhn. nauk; KORNYUSHINA, A.P., inzh.;
SMOLIN, N.P., inzh.

Kilning processes must be determined depending on the use
of lime. Stroi. mat. 9 no.6:8 Je '63. (MIRA 17:8)

SMOLIN, N. S., (Lt Col)

SMOLIN, N. S., (Lt Col) Scheduled to defend publicly his dissertation, "The Advantage of Large-Scale Socialist Agriculture Over Small-Scale Peasant Agriculture and Large-Scale Capitalist Agriculture," for the degree of candidate of economic sciences at the Military Political Academy imeni V. I. Lenin, on 2 March 1954. (Krasnaya Zvezda, 20 Feb 54)

SO: SUM 163, 19 July 1954.

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
MATERIALS INDEX										PROPERTIES INDEX									
BC										A2 3									
<p>Anthraquinone series. XVI. 1: 8-Mercury-containing compounds of anthraquinone. V. V. Koslov and O. D. Smolin. <i>U.S.S.R. Chem., USSR, 1949, 10, 843-848</i> [U.S. transl., 843-847].</p> <p>Anthraquinone-1: 8-disulphonic acid is converted by $HgCl_2$ into the 1: 8-di-mercuri-anthraquinone and thence into the 1: 8-di-mercuri-hydroxide and 1: 8-di-mercuri acid sulphate, sulphonation of which gives anthraquinone-1: 8-disulphonic acid with the 1-sulphonic acid and 1: 8-disulphonic acid.</p> <p>Na anthraquinone-1: 8-disulphonic acid in 0.1 N-NaOH is treated with $HgCl_2$ and the solution boiled for 3 hr. giving anthraquinone-1: 8-di-mercuri-hydroxide, $C_{14}H_8O_4Hg_2$, which is converted by boiling with KOH in MeOH into the 1: 8-di-mercuri-hydroxide. Dissolution of this in conc. H_2SO_4 followed by dilution with H_2O gives anthraquinone-1: 8-di-mercuri hydrogen sulphate.</p> <p>$C_{14}H_8O_4S_2Hg_2$ (2), no m.p. The same product is obtained with $C_{14}H_8O_4S_2Hg_2$ (2). When 1 is heated with 10% steam at $160^\circ/0.5$ hr., 10 or 15% steam. When 1 is heated with 10% steam at $160^\circ/0.5$ hr., a mixture of anthraquinone, its 1-sulphonic acid, and its 1: 8-disulphonic acid are formed.</p> <p>J. D. Wood.</p>																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION										E-2									
1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
MATERIALS INDEX										PROPERTIES INDEX									

SMOLIN, P.L.

D.

USSR/Cosmochemistry - Geochemistry. Hydrochemistry

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4170

Author : Smolin
Inst : Institute of Geological Sciences, Academy of Sciences
USSR

Title : Dedolomitization and Disdolomitization on Contact
Metamorphism of Dolomites of the Aldan District

Orig Pub : Tr. in-ta geol. nauk AN SSSR, 1955, No 165, 143-173

Abstract : Description of the process of dedolomitization and formation of periclasic marbles (decomposition of dolomite with separation of calcite at a temperature $\geq 600-700^\circ$, the liberated CO_2 being removed through the fissures) Among the contact minerals were observed: 1) fluorite and humite, since Fe is the characteristic element of the geochemistry of contact areas within this district; 2) magnetite, the formation of which is associated with metamorphism of Fe hydroxides that were present in the

Card 1/2

- 61 .

MORAVOV, A.A.; SMOLIN, P.P.

Changes in the bird fauna of the forest tract of the Timiriazev
Agricultural Academy of Moscow. Zool. zhur. 39 no.8:1232-1235
Ag '60. (MIRA 13:8)

1. Experimental Station of Forestry, Moscow K.A. Timiryazev Agricultural
Academy. (Moscow--Birds) (Forest fauna)

SMOLIN, P. P.

Smolin, P. P. - "On certain methods of changing the nature of animals", Yestestvoznaniye v shkole, 1949, No. 2, p. 29-31.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

SMOLIN, P.P.

Book for young investigators of nature "For young nature lovers."
N.N.Plavil'shchikov. Reviewed by P.P.Smolin. Est. v shkole no.1:
89-91 Ja-F '55. (MLRA 8:3)

1. Nauchnyy sotrudnik Gosudarstvennogo darvinovskogo muzeya.
(Plavil'shchikov, N.N.) (Nature study)

SMOLIN, P.P., metodist.

Significance of work on the protection and attraction of birds.
Est.v shkole no.1:77-82 Ja-Y '54. (MLRA 6:12)

1. Moskovskaya gorodskaya stantsiya yunykhn naturalistov.
(Birds, Protection of) (Birdhouses)

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates.
Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5145

Author: Smolin, P. P.

Institution: Institute of Geological Sciences Academy of Sciences USSR

Title: Jurassic Refractory Clays of North Caucasus

Original

Publication: Tr. In-ta geol. nauk AN SSSR, 1955, No 165, 47-70

Abstract: Description of the deposits of Krasnogorskaya and Uchkesenskaya refractory clays, their mineralogical and granulometric composition, contaminative admixtures, structure, chemical composition, and new assumptions concerning their genesis are made.

Card 1/1

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 2,
pp 58-59 (USSR) 15-57-2-1583

AUTHOR: Smolin, P. P.

TITLE: Dedolomitization and Magnesia Leaching During Contact
Metamorphism of Dolomites in the Aldan Region (Dedolo-
mitizatsiya i razdolomichivaniye pri kontaktnom meta-
morfizme dolomitov Aldanskogo rayona)

PERIODICAL: Tr. In-ta geol. nauk AN SSSR, 1955, Nr 165, pp 143-
173

ABSTRACT: The action of post-Jurassic alkalic and alkaline-
earth hypabyssal intrusions on Cambrian dolomitic
rocks in the Aldan region (near the village of Oro-
chen) led to the formation of various skarns, oc-
curring immediately adjacent to the contact, and
normal metamorphic rocks in the outer zone of the
metamorphic aureole. The skarns range from 0.5 m to

Card 1/5

15-57-2-1583

Dedolomitization and Magnesia Leaching (Cont.)

7 m in thickness. Among the massive skarns are found magnetite, diopside, magnetite-diopside, magnetite-pyroxene, olivine, pyroxene-hornblende, actinolite-tremolite, diopside-phlogopite, phlogopite-hornblende, and phlogopite-garnet varieties. The outer zone of metamorphism, adjacent to the skarn, is locally more than 100 m across (Zvereva Mountain). This zone is composed of calcite, brucite-calcite, dolomite-calcite, and dolomite marbles, containing admixtures of contact minerals. The calcite marbles contain pargasite-tremolite in addition to calcite. Two varieties are distinguished among the brucite-calcite marbles, corresponding to almost pure pargasite and predazzite. These marbles contain minor amounts of forsterite and associated antigorite, gummite, spinel, and magnetite. Secondary dolomitization is typical of a number of rocks. Dolomite-calcite marbles are the most widespread of the rocks in the outer zone of the contact aureole. The CaO:MgO ratio in them ranges widely. In places, contact minerals are abundantly developed (forsterite, gummite, spinel, magnetite). Dedolomitization cannot be clearly recognized in these marbles. The chemical compositions

Card 2/5

15-57-2-1583

Dedolomitization and Magnesia Leaching (Cont.)

of the contact carbonate rocks of the Aldan region are shown in the accompanying table. Contact metamorphism, with the formation of periclase (dedolomitization), was associated with a gaseous phase. Hydration of the periclase, with formation of brucite, occurred in a later hydrothermal phase. A still later stage in the contact process involved the solution of brucite by hydrothermal waters rich in carbon dioxide (magnesia leaching). This process is indicated by redeposited brucite and secondary dolomitization.

Card 3/5

15-57-2-1583

Dedolomitization and Magnesia Leaching (Cont.)

Components	Dolomite-calcite marble; Zvereda Mountain	Calcite marble; elevation 1254	Dolomite-calcite marble; elevation 1254	Dolomite-calcite marble; elevation 1254	Dolomite-calcite marble; Shapka Monomakha	Pencatite; Vuz Mountain
SiO ₂	6.49	3.99	0.36	10.86	16.67	0.37
TiO ₂	0.02	--	0.03	0.05	0.09	--
Al ₂ O ₃	1.45	0.69	0.17	1.34	8.24	0.51
Fe ₂ O ₃	0.40	0.19	0.15	0.20	1.89	0.26
FeO	0.07	--	--	--	not det.	--

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15-57-2-1583

Dedolomitization and Magnesia Leaching (Cont.)

MnO	0.01	tr	0.01	0.03	0.03	0.03
MgO	14.77	2.17	13.97	20.07	18.67	21.10
CaO	38.20	52.25	39.08	34.07	27.78	37.02
Na ₂ O+K ₂ O	0.42	0.15	tr	1.14	2.10	0.38
H ₂ O+	0.18	--	--	0.44	1.07	8.27
H ₂ O-	--	--	--	--	0.12	0.09
P ₂ O ₅	tr	tr	--	0.05	0.16	--
CO ₂	37.50	40.07	46.95	31.55	22.60	31.75
S	0.06	0.06	0.03	0.23	0.24	0.01
Total	99.57	99.55	99.75	100.03	99.61	99.79

Card 5/5

V. P. Ye.

SMOLIN, P.P.

Volcanic rocks in Devonian deposits in the region of Solov'yevsk
in Amur Province (upper Amur Valley). Izv.AN SSSR,Ser.geol. 21
no.5:39-47 My '56. (MLRA 9:8)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, minera-
logii i geokhimii AN SSSR, Moskva.
(Amur Valley--Geology, Stratigraphic)

SMOLIN, P. P. Cand Geol-Min Sci ^J (diss) "Contact Processes of the
Postjurassic ~~INTRUSIVE~~ Intrusions ~~in~~ Aldan." Mos, 1957. 12 pp 22 cm.
(Inst of ~~the~~ Geology of Ore Deposits, Petrography, Mineralogy, and
Geochemistry, Academy of Sciences, USSR), 140 copies (KL,18-57,95)

- 15 -

SMOLIN, P.P.

Composition and genesis of clays in Timpton District, Yakutia.
Trudy IGEM no.10:92-98 '57. (MIRA 11:6)
(Timpton District--Clay)

SMOLIN, P.P.

Brucite marble in the area of Satka. Trudy IGM no.17:34-45 '57.
(Chelyabinsk Province—Marble) (MIRA 11:6)
(Brucite)

P.P. SMOLIN

27
2118. Brucite marble—a new magnesium raw material.—P. P. SMOLIN (*Ogneupor*, 22, 229, 1957). In Russian. This marble is described as a brucite-calcite metamorphic rock. Canadian deposits and the method of extracting MgO from them are briefly reviewed. The author found deposits in Aldan (S.E. Yakutsk, Siberia); they contain approx. 12–33% brucite, 29–82% calcite, and 0–53% dolomite. (3 figs., 2 tables.)

ha
mt

SMOLIN, P. P.

Dissertations. Branch of Geological-Geographical Sciences Jul.-Dec 1957
Vest. Ak Nauk SSSR, No. 4, pp. 118-119, 1958.

At the Institute for the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry the following dissertations were defended for the degree of a Candidate of Geological-Mineralogical Sciences:

GALDIN, N. Ye. - Peculiarities in the Structure of the Deposit of Belousovsk in the Altai.

SMOLIN, P. P. - Contact Processes of the Post-Jurassic Intrusions of the Aldan.

At the Geological Institute the following dissertations for the degree of a Doctor of Geological-Mineralogical Sciences were defended:

ASLANYAN, A. T. - Regional Geology of Armenia.

GIMMEL'FARB, B. M. - Essential Regularities of the Phosphorite Deposits of the USSR and Their Genetic Classification.

LUCHITSKIY, I. V. - Volcanism and Tectonics of the Devonian Depressions of the Minusinsk Bending of the Intermediate Mountains.

POGULYAYEV, D. I. - Geological Structure and Mineral Resources of the Smolensk Region.

At the Institute of Oceanology the following dissertations for degree of Cand. of Geographical Sciences were defended:

ARKHIPOVA, Ye. G. - Thermal Regime of the Caspian Sea.

UL'ST, V. G. - Morphology and Developmental History of the Field of Marine Accumulation in the Summit of the Gulf of Riga.

AUTHOR: Smolin, P. P. SOV/20-121-1-44/55

TITLE: The Fundamental Traits of Metamorphic Zonality at the Contact of Post-Jurassic Subalkaline Intrusions and Cambrian Dolomites of Aldan (Osnovnyye cherty metamorficheskoy zonal'nosti na kontakte posleyurskikh subshchelochnykh intruziy i kembriyskikh dolomitov Aldana)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 155 - 158 (USSR)

ABSTRACT: The upper structure stage of Central Aldan (the northern part of the Aldan-Timpton watershed = Aldano-Timptonkiy vodorazdel) consists of Lower Cambrian dolomites (up to 400 m thick) and of Middle Jurassic terrigenous fresh water sediments (450 m) which rest horizontally upon a peneplained Pre-Cambrian fundament. Mainly in the dolomites numerous Post-Jurassic intrusions are localized (Refs 1-3). They are represented on the whole by alkali syenites and form bodies of different size and shape, often typical lakkolites. Metamorphic zones were detected by means of detailed investigations of the contact aureoles. They change according to size, shape, and composition of the intrusions. This material is a typical example of the

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The Fundamental Traits of Metamorphic Zonality at the SOV/20-121-1-44/55
Contact of Post-Jurassic Subalkaline Intrusions and Cambrian Dolomites of
Aldan

contact metamorphism of the dolomites. Thanks to the distinctly marked contact aureoles the transitions from the rocks, which are to a great extent metamorphized, to the unchanged rocks may be easily seen. Table 1 shows a scheme of the typical zone formation of the aureoles. The total thickness of the inner zone of the aureoles sometimes amounts to several dozens of meters, in most cases, however, to only some meters. 3 fundamental zones were separated in the skarns: 1) Calcareous skarns (garnet-, garnet salite-, and salite epidote skarns) which developed mainly at the endocontact and contain syenite relics which may be substituted; 2) Magnesian exoskarns of spinell-diopside, phlogopite-diopside, and hornblende-diopside; 3) An outer zone of the magnesian exoskarn of spinell-forsterite, phlogopite-forsterite, and humite. The outer normal-metamorphic zone in the contact aureoles of the great intrusions sometimes amounts to a width of more than 1 km and a height of several hundred meters. Their inner zonality on the whole reflects a progressive temperature rise towards the intrusions. This is expressed by the character of dedolomitization, furthermore

Card 2/4

The Fundamental Traits of Metamorphic Zonality at the SOV/20-121-1-44/55
Contact of Post-Jurassic Subalkaline Intrusions and Cambrian Dolomites of
Aldan

by the thermal breaking of the dolomite into a periclase- and calcite aggregate (1 : 1). Periclase is then substituted by a fibrous brucite which forms very characteristic pseudomorphic aggregates. The processes of the retrograde metamorphism of the brucite marble influenced beside the dedolomitization, though to a smaller extent, the formation of the metamorphic zonality. The author's observations do not confirm the opinion of Yu.A.Bilibin (Ref 2) that a considerable thermal metamorphism, above all a skarn forming metasomatism is caused by alkali intrusions only. The author found the greatest skarn zones at the contact with alkaline syenites (Shaman mountain). Forsterite-containing marble is formed around small nepheline-syenite intrusions, as well as at the contact with the alkaline intrusions of similar size. There are 1 figure, 1 table, and 8 references, which are Soviet.

ASSOCIATION: Institut geologii rudnykh mestorozhdeniy, petrografii, mineralo-
gii i geokhimii Akademii nauk SSSR (Institute of the Geology
Card 3/4 of Ore Deposits, Petrography, Mineralogy, and Geochemistry, AS USSR)

The Fundamental Traits of Metamorphic Zonality at the: SOV/20-121-1-44/55.
Contact of Post-Jurassic Subalkaline Intrusions and Cambrian Dolomites of
Aldan

PRESENTED: March 24, 1958, by D.S.Korzinskiy, Member, Academy of Sciences,
USSR

SUBMITTED: March 21, 1958

1. Geology--USSR 2. Geological time--Determination 3. Dolemite
--Geology 4. Geochemistry

Card 4/4

AUTHOR: Smolin, P.P.

SOV/11-59-1-5/16

TITLE: The Mica-Bearing Pegmatites and the Absolute Age of Post-Jurassic Intrusions of the Aldan (Slyudonosnyye pegmatity i absolyutnyy vozrast posleyurskikh intruziy Aldana)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geologicheskaya, 1959, Nr 1, pp 45 - 49 (USSR)

ABSTRACT: Coarse-grained rocks of pegmatite type were found by the author only within the boundaries of the Yakut compound intrusive block, south of the town of Aldan. This block, measuring 6.5 x 3.5 km, is composed of different alkali rocks with numerous intrusions of augitic syenites in its north and north-west parts. The composition of these syenites varies from monzonites to granosyenites. The author gives a detailed description of this block. The definition of the absolute age of various rocks of the block by the K-Ar system showed that they all belonged to the same single post-Jurassic magmatic cycle, and that the whole intrusive block was formed in the Upper-Jurassic period. The names

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SOV/11-59-1-5/16

The Mica-Bearing Pegmatites and the Absolute Age of Post-Jurassic Intrusions of the Aldan

of M.G. Zamurayev, E.K. Gerling, S.S. Sardarov, Yu.A. Bilibin, I.V. Belov, Yu.K. Dzevanovskiy and Ye.V. Pavlovskiy are mentioned in this article. There is 1 map, 1 table, 1 photo, and 9 references, of which 8 are Soviet and 1 American.

ASSOCIATION: Institut Geologii rudnykh mestorozhdeniy, petrografii mineralogii i geokhimii (The Institute of Geology of Mineral Deposits, Petrography, Mineralogy and Geochemistry of the AS USSR) Moscow

SUBMITTED: October 25, 1957

Card 2/2

SMOLIN, P.P.

Principles of efficient classification of metamorphosed carbonate rocks. Izv. AN SSSR. Ser. geol. 24 no. 12:36-53 D '59.
(MIRA 13:8)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralologii i geokhimii AN SSSR, Moskva.
(Rocks, Carbonate--Classification)

SMOLIN, Petr Petrovich; PETROV, V.P., doktor geol.-mineral.nauk, otv.red;
~~SHIRINMAN, V.S.~~, red.izd-va; DOROKHINA, I.N., tekhn.red.

[Contact processes in Aldan Post-Jurassic intrusions] Kontaktnye
protsessy poslejuraskikh intruzii Akdana. Moskva, Izd-vo. Akad.
nauk.SSSR, 1960. 122 p. (Akademiia nauk SSSR. Institut geologii
rudnykh mestorozhdenii, petrografii, mineralologii i geokhimii.
Trudy, no.38). (MIRA 13:9)

(Akdan Plateau--Metamorphism (Geology))

IOLYAKOVA, N.L.; SMOLIN, P.P.; EYDEL'KIND, A.M.

Ironless talcites from the Kirgitey deposits. Stek. i ker.
17 no.9:28-33 S '60. (MIRA 13:9)
(Talc)

SMOLIN, P.P., kand.geologo-mineralogicheskikh nauk

Intrusions of southern Yakutia. Priroda 49 no. 12:95-97 D '60.
(MIRA 13:12)

1. Institut geologii rudnykh mestorozhdeniy, petrografii,
mineralologii i geokhimii AN SSSR, Moskva.
(Yakutia--Rocks, Igneous)

SMOLIN, P.P.

Characteristics of the distribution of magnesium silicate minerals.
Geol. rud. mesotorzh. no.2:139-141 Mr-Ap '61: (MIRA 14:5)
(Magnesium silicates)

SHUM, I.P.

Report on the studies of the session of the Interdepartmental
Commission on the Distribution of Endogenic Deposits.
Sov.geol. 4 no.7:154-156 J1 '61. (IRA 14-10)

1. Institut geologii rudnykh mestorozhdeniy, petrografiya,
mineralogii i geokhimii AN SSSR.
(Magnesian silicates)

SMOLIN, P.P., kand.geol.-mineralog.nauk (Moskva)

Iron-free talc. Priroda 50 no.5:57-60 My '61.
(Talc)

(MIRA 14:5)

SMOLIN, P.P.

Kirgitey deposit of talc with a low iron content in Krasnoyarsk
Territory and the origin of new industrial talc ores. Trudy
IGEM no.63:66-101 '61. (MIRA 14:9)
(Angara Valley--Talc)

SMOLIN, Petr Petrovich, kand. geologo-miner. nauk; SMIRNOVA, N.P.,
red.; ATROSHCHENKO, L.Ye., tekhn. red.

[New life of underground treasures] Novaia zhizn' podzemnykh
kladov. Moskva, Izd-vo "Znanie," 1962. 44 p. (Novoe v zhizni,
nauke, tekhnike. XII Seriya: Geologiya i Geografiya, no.9)
(Geology, Economic) (MIRA 15:7)

SMOLIN, P.P.

"Geology of the industrial rocks and minerals" by Robert L. Bates.
Reviewed by P.P. Smolin. Geol.rud.mestorozh. no.6:119-120
N-D '62. (MIRA 15:12)

(Geology, Economic)
(Bates, Robert L.)

SMOLIN, P.P.

Distribution of commercial talc deposits in the U.S.S.R. and
criteria of the localization of especially valuable talc with
a noniron content. Zakonom. razm. polezn. iskop. 6:493-548
'62. (MIRA 16:6)

1. Institut geologii rudnykh mestorozhdeniy, petrografii,
mineralogii i geokhimii AN SSSR.
(Talc)

SMOLIN, Petr Petrovich, kand. geol.-miner. nauk; ANDRIANOVA, V.M.;
red.; NAZAROVA, A.S., tekhn. red.

[Metals of the 20th century]Metally XX veka. Moskva, Izd-
vo "Znanie," 1963. 45 p. (Novoe v zhizni, nauke, tekhnike.
XII Seria: Geologiya i geografiia, no.5) (MIRA 16:4)
(Light metals) (Metals, Rare and minor)
(Rare earth metals)

SMOLIN, P.P.

New American manual on petrography. Izv. AN SSSR Ser. geol. 28
no.11:101-103 N'63. (MIRA 17:2)

SMOLIN, P.P.

Development of talc deposits and the talc industry in the U.S.S.R.
Trudy IGEM no.95:29-48 '63. (MIRA 16:12)

SMOLIN, P.P.

Formation types of ultrabasites and their mineragenesis. Dokl.
AN SSSR 155 no. 3:586-588 Mr '64. (MIRA 17:5)

1. Institut geologii rudnykh mestorozhdeniy, petrografii,
mineralogii i geokhimii AN SSSR. Predstavleno akademikom V.I.
Smirnovym.

SMOLIN, P.P.

S.V. Moskaleva's transformist conceptions of the genesis of
ultrabasites and gabbroids. Izv. AN SSSR. Ser. geol. 29 no.9:
100-105 S '64. (MIRA 17:11)

SMOLIN, P.F.

Formation types of ultrabasites and their mineral origin.
Dokl. AN SSSR 159 no.2:348-350 N '64. (MIRA 17:12)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralologii
i geokhimii AN SSSR. Predstavleno akademikom V.I. Smirnovym.

SMOLIN, P.P.

Relation of the petrochemical dispersion of Klarks to the periodic system of elements. Dokl. AN SSSR 163 no.1:212-215 J1 '65. (MIRA 18:7)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralologii i geokhimii AN SSSR. Submitted November 21, 1964.

NAKOLASHIN, V. I. *Problemy mineral'nykh tsatsii metamorficheskikh i metasomaticheskikh gornykh porod.* Moskva, Nauka, 1965. 336 p.

[Problems of the mineral facies of metamorphic and metasomatic rocks] *Problemy mineral'nykh tsatsii metamorficheskikh i metasomaticheskikh gornykh porod.* Moskva, Nauka, 1965. 336 p. (MIRA 18:11)

SMOLIN, P.P.

Practical significance of the petrochemical dissemination
of abundance ratios. Dokl. AN SSSR 166 no.1:206-210 Ja
'66. (MIRA 19:1)

1. Institut geologii rudnykh mestorozhdeniy, petrografii,
mineralogii i geokhimii AN SSSR. Submitted May 26, 1965.

SMOLIN, R. P., DRCKIN, A. I. and LAPTEV, D. A.
(Krasnoyarsk)

"Studies of the Temperature Magnetic Hysteresis on the Points of the Hysteresis Loop."

Nickel and iron-nickel alloy samples had been studied for this purpose.

paper presented at the All-Union meeting on Magnetic Structure of Ferromagnetics June 1958, in Krasnoyarsk. Meeting sponsored by Inst. of Physics, Acad. Sci, USSR, and Comm. for Magnetism, Dept Phys-Math Sci, AS USSR,

SMOLIN, R.P.

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PHASE I BOOK EXPLOITATION

SOV/5526

Vsesoyuznoye soveshchaniye po magnitnoy strukture ferromagnetikov,
Krasnoyarsk, 1958.

Magnitnaya struktura ferromagnetikov; materialy Vsesoyuznogo
soveshchaniya, 10 - 16 iyunya 1958 g., Krasnoyarsk (Magnetic
Structure of Ferromagnetic Substances; Materials of the All-Union
Conference on the Magnetic Structure of Ferromagnetic Substances,
Held in Krasnoyarsk 10 - 16 June, 1958) Novosibirsk, Izd-vo
Sibirskogo otd. AN SSSR, 1960. 249 p. Errata slip inserted.
1,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki Sibirskogo
otdeleniya. Komissiya po magnetizmu pri Institute fiziki metallov
OFMI.

Resp. Ed.: L. V. Kirenskiy, Doctor of Physical and Mathematical
Sciences; Ed.: R. L. Dudnik; Tech. Ed.: A. F. Mazurova.

PURPOSE: This collection of articles is intended for researchers in
ferromagnetism and for metal scientists.

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Magnetic Structure (Cont.)

SOV/5526

COVERAGE: The collection contains 38 scientific articles presented at the All-Union Conference on the Magnetic Structure of Ferromagnetic Substances, held in Krasnoyarsk in June 1958. The material contains data on the magnetic structure of ferromagnetic materials and on the dynamics of the structure in relation to magnetic field changes, elastic stresses, and temperature. According to the Foreword the study of ferromagnetic materials had a successful beginning in the Soviet Union in the 1930's, was subsequently discontinued for many years, and was resumed in the 1950's. No personalities are mentioned. References accompany individual articles.

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Foreword

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Shur, Ya. S. [Institut fiziki metallov AN SSSR - Institute of Physics of Metals, AS USSR, Sverdlovsk]. On the Magnetic Structure of Ferromagnetic Substances

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Magnetic Structure (Cont.)

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on the Magnetic Properties of Ferrites

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Dekhtyar, M. V., and N. M. Kazantseva [Physics Department of the Moscow State University]. Anomalous Temperature Dependence and Irreversible Changes in the Magnetic Properties of Alloy Ni - Fe (50% Ni)

177

Spivak, G. V., and I. A. Pryamkova [Physics Department of the Moscow State University]. Development of the Electron-Mirror Method for the Visual Observation of the Domain Structure of Ferromagnetic Substances

185

Spivak, G. V., Ye. I. Shishkina, and V. Ye. Yurasova [Physics Department of the Moscow State University]. Concerning One Method for the Detection of Magnetic Inhomogeneities

191

Drokin, A. I., D. A. Laptey, and R. P. Smolin [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Thermo-magnetic Hysteresis of Ferromagnetic Substances at the Points

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Magnetic Structure (Cont.)

SOV/5526

of a Hysteresis Loop

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Kirenskiy, L. V., A. I. Drokin, and D. A. Laptev [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Effect of Elastic and Plastic Deformations on the Magnitude of Thermomagnetic Hysteresis

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Margolin, S. D., and I. G. Fakidov [Institute of Physics of Metals AS USSR, Sverdlovsk]. Magnetic Studies of Alloys of the Manganese - Germanium System

211

Kirenskiy, L. V., and B. P. Khromov [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Study of the Approach-to-Saturation Law on Monocrystals of Iron Silicide

217

D'yakov, G. P. [Physics Department of the Moscow State University]. Current State of the Problem Concerning the Study of Parity Effects in the Approach-to-Saturation Region

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Card 10/11

69684

S/126/60/009/03/004/033
E111/E414

24.7900

AUTHORS: Kirenskiy, L.V., Laptey, D.A., Drokin, A.I. and
Smolin, R.P. 21

TITLE: Temperature Magnetic Hysteresis of Silicon-Iron Single
Crystals

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3,
pp 337-344 (USSR)

ABSTRACT: The authors point out that although investigation of
magnetic hysteresis should be carried out on single
crystals, polycrystalline specimens have only been used
for temperature magnetic hysteresis studies (eg Ref 1 to
3). The present authors have used single crystal
5.4 x 0.43 x 0.076 cm specimens of 3.8% Si - iron cut
by etching along the principal and intermediate
crystallographic directions. Crystallographic
orientation was determined by the Laue method. Before
measurements, specimens were vacuum annealed at 1100°C
for 4 hours and cooled slowly. Measurements were carried
out with a heating-cooling cycle of +50 to ⊗ to +50°C
on a vertical astatic magnetometer described previously
(Ref 4). Fig 1, 2 and 3 show magnetization as a function ✓

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Temperature Magnetic Hysteresis of Silicon-Iron Single Crystals

of temperature for the $[100]$, $[110]$ and $[111]$ directions, respectively, and for various field strengths. At low field strengths (under 1 oersted) the curves in Fig 1 have two maxima and one minimum and intersect, but they become simpler with increasing field strength and at 100 oersted hysteresis is practically absent and the curve shows a continuous fall with increasing temperature. For the other directions, fields up to 3 oersted give curves with one pronounced maximum; at higher fields (100 to 150 oersted) the curves again become simpler but even at 150 oersted a maximum remains in the curve for the $[111]$ direction (Fig 3e). With specimens cut out along intermediate directions (15, 40 and 75° to the $[100]$ direction) considerably different curves were obtained. Fig 4 shows the hysteresis as a function of field strength for the main directions and one for a specimen cut out at 40° to $[100]$ (curve 4): all have a maximum. Corresponding functions for relative change in magnetization are shown in Fig 5 with an additional curve (5) for a 15° inclination to $[100]$: all curves

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Temperature Magnetic Hysteresis of Silicon-Iron Single Crystals

fall continuously with increasing field strength. The authors propose an explanation of their magnetization vs temperature curves on the basis of a comparison of these results with known data (Ref 7,8) on the temperature dependence of the magnetic-anisotropy and magnetostriction constants and the original domain structure. There is a discrepancy between Fig 5 and corresponding results of Baranova and Shur (Ref 9): this is attributed to differences in the alignment of the easy-magnetization axes. Fig 6 shows a series of domain structures for magnetization along $[110]$ in fields up to 30 oersted. The authors explain the similarity between magnetization vs temperature curves for polycrystalline silicon-iron specimens with those for single crystals along $[110]$ and $[111]$ by the presence in the former of more crystals with these and similar directions than with $[100]$. The authors note that the foregoing can explain occasionally observed sharp dips in magnetization vs temperature curves. There are 6 figures and

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Temperature Magnetic Hysteresis of Silicon-Iron Single Crystals
9 Soviet references.

ASSOCIATION: Institut fiziki Sibirskogo otdeleniya AN SSSR
g. Krasnoyarsk (Institute of Physics, Siberian Division
of the Academy of Sciences USSR, Krasnoyarsk)

SUBMITTED: July 1, 1959

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30472

24,2200 (1137, 1147, 1164)

S/139/61/000/005/009/014
E194/E135

AUTHORS: Kiranskiy, L.V., Drokin, A.I., Cherkashin, V.S., and
Smolin, R.P.

TITLE: Ideal magnetisation curves of ferro-magnetics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
no.5, 1961, 78-83

TEXT: The concept of an ideal hysteresis-less magnetisation curve of ferromagnetics has existed for a long time. Various methods of producing the ideal curves have been used, such as application to the specimen of d.c. and a.c. with amplitude decreasing to zero, application of successive heating and cooling, and also magnetic shock. It was considered that these various kinds of treatment would suffice to establish a condition of parallel magnetisation in neighbouring ferromagnetic domains. The problem of whether or not ideal curves produced in different ways coincide has still not been resolved and this was the object of the present investigation. The ideal curves were obtained by applying to the specimen direct and alternating fields of amplitude diminishing to zero by ultrasonic mechanical shaking
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and rapping and by temperature variation, heating the sample to temperatures both below and above the Curie point followed by cooling to the initial temperatures. For temperatures below the Curie point the process was repeated four times. The tests were made with the materials listed in Table 1. Sample 4 was highly work hardened. These compositions were chosen because they had a fairly wide hysteresis loop and comparatively low Curie points. No special heat treatment was applied because this would narrow the hysteresis loops and reduce the differences between materials. Measurements were made in a vertical astatic magnetometer. Kondorskiy's indication that the method of demagnetisation could affect the shape of the magnetisation curves was found to be true in practice. Accordingly, before every measurement the samples were demagnetised by heating to the Curie point followed by cooling in the absence of a magnetic field. Fig.2 shows graphs of the relation between the magnetisation and field for the nickel specimen No.1. The initial curve No.1 lies below all the others and only at high fields does it intersect curve 2, which was produced by ultrasonic mechanical treatment: curve 2' was

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obtained by mechanical treatment whilst reducing the magnetic field. The hysteresis-less curve could not be obtained by ultrasonic treatment because when the treatment was made more intensive the specimen failed. Curve 3 was obtained by temperature cycling, heating from 20 to 230 °C and recooling to 20 °C. Curve 4 was obtained by applying to the specimen an alternating field diminishing to zero. Very similar curves were obtained for samples Nos. 2 and 3. It was confirmed on sample No. 4 that hysteresis-less curves obtained in different ways approach one another and coincide if uniform mechanical stresses, within the elastic limit, are applied to the sample during the measurements. Within the elastic limit, compression of the specimen extends the hysteresis loop and it is possible that under these conditions the hysteresis-less curves might differ. However, this would be difficult to check because of bending of the sample. The investigations showed that mechanical treatments (impact and ultrasonic oscillation) generally do not give hysteresis-less curves. Evidently, such treatment may not be sufficient to overcome the potential energy barrier and to establish parallel

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magnetisation in neighbouring domains. Temperature variations with simultaneous application of a direct magnetic field can give hysteresisless magnetisation curves, however, usually these do not coincide with one another. When uniform mechanical stress is applied, the hysteresis curves obtained by different methods coincide in the limits.

There are 5 figures, 1 table and 22 references: 12 Soviet-bloc, 1 Russian translation from non-Soviet publication, and 9 non-Soviet-bloc. The English language references read as follows:
Ref. 2: J. Ewing, Trans. Roy. Soc., Vol. 1, 464, 1885.
Ref. 9: J.R. Ashworth, Ferromagnetism, London, 1918.

ASSOCIATION: Institut fiziki SO AN SSSR
(Institute of Physics, SO AS USSR)
Krasnovarskiy pedinstitut
(Krasnoyarsk Pedagogical Institute)

SUBMITTED: August 1, 1960

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S/058/62/000/004/079/160
A058/A101

24.1800

AUTHORS: Brokin, A. I., Cherkashin, V. S., Smolin, R. P.

TITLE: The effect of ultrasonic waves on irreversible magnetization processes in single-crystallized nickel

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 38, abstract 4G321 (V sb. "Primeneniye ul'traakust. k issled. veshchestva". v. 13, Moscow, 1961. 181-187)

TEXT: The authors describe experiments aimed at elucidating the effect of ultrasonic waves of frequency 20 kc. on the intensity of magnetization of specimens and on the shape of their magnetization curves. The experiments were carried out on specimens of recrystallized Ni with cubic texture that had all the properties of Ni single crystals. It was established that irradiation of specimens with ultrasonic waves resulted in an increment of magnetization which had a sharply expressed maximum at field strength ≈ 4 oersteds and depended somewhat on the orientation of the specimens crystal axes. After the passing of the cycle of temperature magnetic hysteresis, the maxima of the specimens' magnetization increment are shifted to the region of weaker fields. The

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The effect of ultrasonic waves on irreversible ...

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magnetization curves of specimens after sound-irradiation and the passing of the hysteresis cycle climb to the saturation region more steeply than in ordinary specimens, a greater effect being caused by magnetic hysteresis in fields of 0 - 5 oersteds, and by sound-irradiation in fields above 5 oersteds. The described results are discussed on the basis of ideas regarding domain-boundary shifts and spin rotation under the action of ultrasonic waves. ✓B

I. Viktorov

[Abstracter's note: Complete translation]

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